

Net Metering and Photovoltaics (PV)

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Overview

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PV Technology
Net Metering at Xcel
NM at REAs

PV Tech

Photovoltaics

Durable

Long life





PV Manufacturing capacity
> 35% growth per year

2004: ~ 1 GW

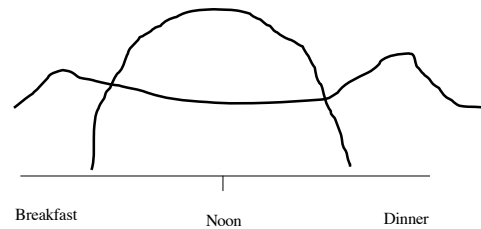
2005: 1.6 GW (early number)

Today: 2 to 5 year energy
payback. Silicon & Thin-Film

On roofs soon?

Triple-junction, concentrating PV,
quantum dots, nanotech, titanium
dioxide, thermovoltaics,
PV Paint...

Solar vs. Load



Net Metering History at Xcel

1999 about 100 true NM homes
early 2004 proposed two-metering
late 2004 & A 37 true NM

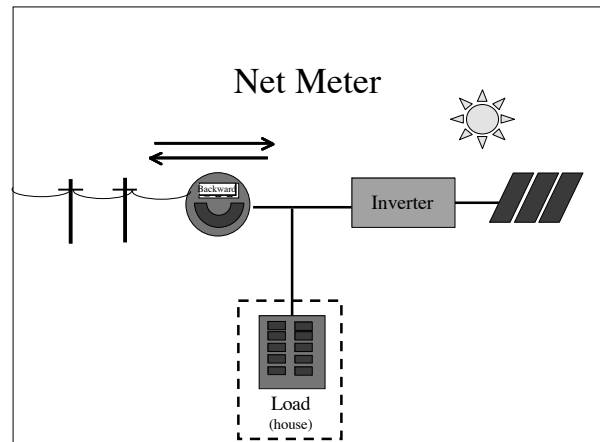
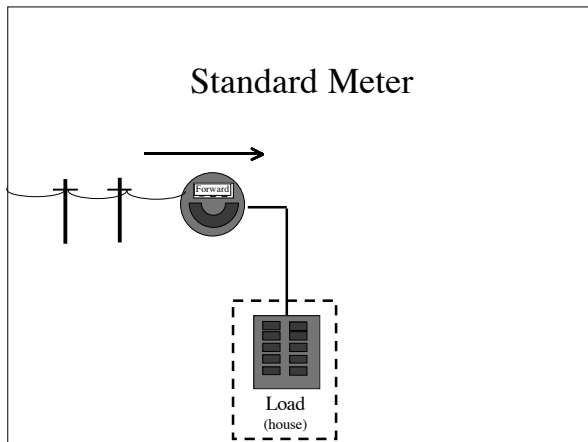
True Net Metering

Net Meter: A single meter, with a
single register, that measures the net
use of electricity by recording
forward and backward flow.

Excess kWhs carried over month to month

Settle once each year (vernal equinox)

No extra fees



Net Metering

- End of Month
 - **Bill = S & F fee + Net Usage * rate**
 - **Excess kWh are carried over**
- End of Year
 - **If still have kWh to carryover, customer gets a small check**

True Net (Xcel) Bill

Customer 500 kWh of usage each month.

Month A, PV generates 600 kWh,

Month B, 400 kWh

Month A Bill: =

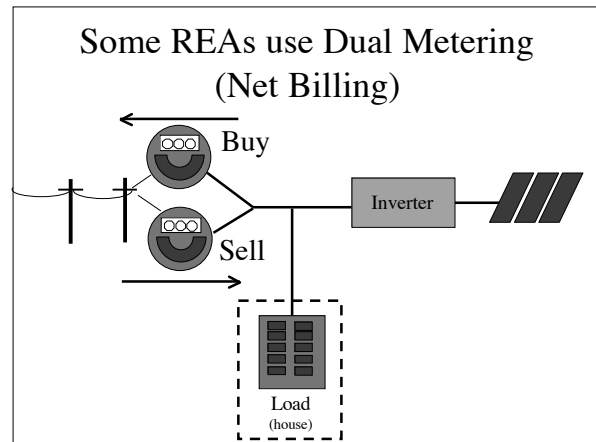
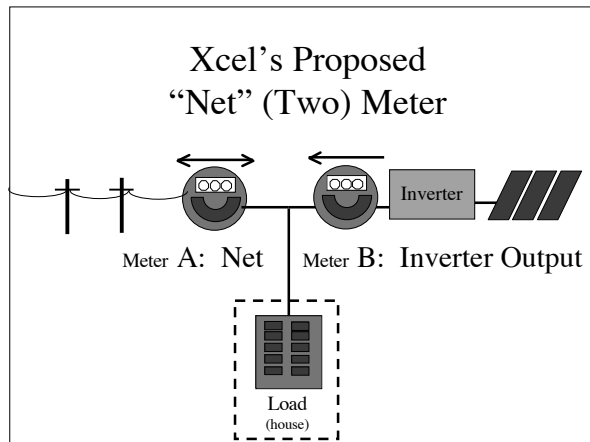
$$\$7.25 + (0) * .08 = \$7.25$$

Carryover 100 kWh

Month B Bill: =

$$\$7.25 + (100 - 100) * .08 = \$7.25$$

Carryover 0 kWh



**REAs using Dual Metering
call it
Net Metering**

2002 Colorado Net Metering law for Coops

... "shall" have net metering up to 1%
capacity

... "may" use 2 meters

Dual Meter Bill

Customer 500 kWh of usage each month.

Month A, PV generates 600 kWh,

Month B, 400 kWh

Month A Bill: =

$\$7.25 + (300) * .08 +$

$\$7.90 - (400 * .04) = 23.23$

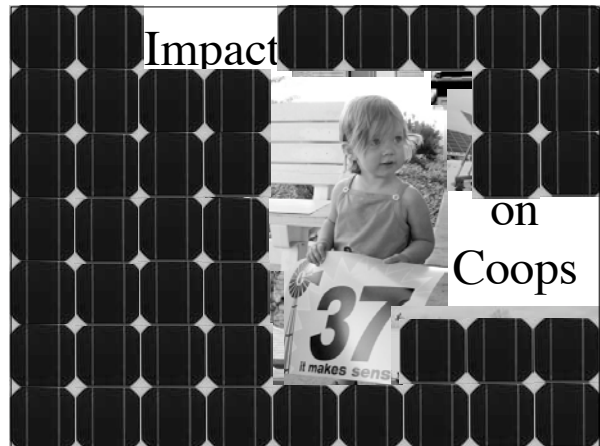
Month B Bill: =

$\$7.25 + (370) * .08 +$

$\$7.90 - (270 * .04) = 33.87$

Some REAs have
True Net Metering

With high minimum fees.



Impacts

1. “What, no rebates!!!”

Compare

Xcel	REA
$\$7.25 + (0) * .08 = \7.25	$\$7.25 + (300) * .08 +$ $\$7.90 - (400 * .04) = 23.23$
$\$7.25 + (100 - 100) * .08 = \7.25	$\$7.25 + (370) * .08 +$ $\$7.90 - (270 * .04) = 33.87$
Total \$14.50	\$57.10

Impacts

1. “What, no rebates!!!”
2. “Your ‘net metering’ costs me 4 times Xcel’s??!!!”

Cost to all other ratepayers to do True Net Metering?

About 1/3 to 1/2 of 1%

ignoring all the member perceived benefits of solar

Impacts

1. “What, no rebates!!!”
2. “Your ‘net metering’ costs me 4 times Xcel’s??!!!”
3. **Member Perception:
REAs Unfriendly to Solar**

Recommendations

1. Agree on terms to clearly define net metering, dual metering, etc.
2. Poll your members. Ask them if they would support < 1 % rate increase to be friendly to solar.

Questions?

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Solar vs. Load

